
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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ZINC IN OCTOBER 1997

Domestic mine production in October, expressed in content of concentrate, declined by nearly 10% below the previous month's production, while smelter production remained the same. Apparent consumption in October was about 2% lower than in September, but it was nearly 7% higher than in October 1996.

The *Platt's Metals Week* composite price for North American Special High Grade zinc declined by more than 20%. This large decline was precipitated by a move of the London Metal Exchange (LME) market into contango on October 2nd. It was the first time since July that the three-month price for zinc metal was higher than the cash price. Meanwhile, stocks have increased 33% since late August. A 167% increase in exports from China for the first seven months of 1997 compared with the same period last year has played a deciding role in the unexpected LME stock increase. Supply and demand being in a near balance, next year's surplus or deficit will depend upon whether or not elevated exports can be sustained by the Chinese Government.

The Congressionally imposed floor price on sales from the National Defense Stockpile expired on Oct. 1, opening the way for the Defense Logistics Agency to offer zinc on a long-term basis in a negotiated-bid format. Only a small portion, about 1,000 tons per month, will be set aside for spot sales.

According to the company's recently published FY 1997 Annual Report, the roaster shutdown at the Clarksville, TN, refinery in April reduced the forecasted profits of Savage Zinc Inc., the wholly owned subsidiary of Australia's Savage Resources Ltd. However, despite the shutdown, zinc metal production in FY1997 (fiscal year ending on June 30, 1997) increased by 3% to 108,552 tons. A feasibility study was initiated to increase the refinery capacity from the current 105,000 tons annually to 275,000 tons. Because of the closure of the Jefferson City Mine, TN, in Oct. 1996, total ore production at Savage Zinc declined by nearly 9% to 2.1 Mt in FY 1997, while the production of concentrate dropped to

94,500 tons, containing 63.6% zinc. The commissioning of a second underground road train at the Gordonsville Mine, TN, should facilitate increased ore production, partially offsetting the closure of the Jefferson City Mine. Drilling in the vicinity of the existing mines increased proven and probable reserves to 28.1 million tons at 3.1% zinc.

Zinc production from Tennessee will be further affected by the labor dispute at three zinc mines owned by ASARCO Incorporated. While the Coy and Immel mines have halted operations completely, the Young Mine, the largest of the three mines, continued operations at a reduced level staffed by salaried personnel (Metal Bulletin, 1997a).

The 40% production rate increase at the Red Dog Mine, AK, approved by Cominco Ltd. last year, will require a new crushing plant, another grinding mill, additional filtering and flotation capacity, as well as additional trucks and housing facilities. By 1999, when production is expected to reach 900,000 tons of concentrate annually, the port facility on the Chukchi Sea will have to be expanded and the storage and shipping capacity increased (Mining Record, 1997). A further increase of ore production might come as a result of an agreement with the Liard First Nation tribe that paves the way for reopening of the Sa Dena Hes Mine in southeastern Yukon Territory, Canada. The mine, owned by Korea Zinc Co. Ltd. (50%), Cominco (25%), and Teck Corp. (25%), has reserves of 1.75 million tons grading 12.1% zinc (Metal Bulletin, 1997c) and could produce about 45,000 tons of zinc in concentrate by 1998 (American Metal Market, 1997). At the end of September, Cominco authorized doubling Cajamarquilla's zinc refining capacity to 240,000 tons per year. The expansion of this recently acquired Peruvian refinery will increase Cominco's refining capacity to 0.5 million tons annually by 2000. The company is awaiting the resolution of local issues before construction can proceed. The smelter is currently undergoing a 20,000 ton expansion to raise the capacity to 120,000 tons annually by next May.

In a joint news release, Westmin Resources Limited and Atna

Resources Ltd. announced the discovery of the Sable zone. The thicker than expected, precious metal-rich massive sulfide zone is located on the southeastern edge of the Wolverine deposit in southeastern Yukon Territory. The newly discovered zone is 1.6 kilometers from the Wolverine deposit, jointly owned by Westmin (60%) and Atna (40%). The polymetallic Wolverine deposit, delineated during 1995-1996 drilling, contains 5.3 million tons of ore grading 13% zinc plus additional metals (Westmin, 1997).

Peru's state-owned Empresa Minera del Centro del Peru S.A. (Centromin) plans to complete its privatization program by the end of 1998. Yauricocha, one of the polymetallic mines slated for privatization by the end of 1997, received only one bid, submitted by Cía Minera San Ignacio de Morococha S.A. (SIMSA). Under the auction terms, SIMSA would be obliged to invest \$2 million in the next two years for exploration, after which it will have an option to purchase the deposit for \$7 million over a five-year period (Metal Bulletin, 1997d). Mahr Túnel, the polymetallic mining complex consisting of San Cristóbal and Andaychagua mines and two linked smelters, was sold to Peru's Minera Volcán for \$124 million. The funds for the purchase of the 97% interest in Mahr Túnel were contributed by two Peruvian families and the mine workers (Metal Bulletin, 1997b).

Cominco Peru, Peruvian subsidiary of Cominco Ltd., and Solitario Resources of Colorado reported the discovery of additional high-grade zinc mineralization at the Florida Canyon project in northern Peru. Ore content from the last 11 drill holes revealed mineralization ranging from 12% to 30% zinc and 2.8% to 3.2% lead. To date, 24 holes totaling 5,264 meters were completed at Florida Canyon and 6 holes (1,200 meters)

at the nearby Florcita project. Cominco will earn a 60% interest in the project by spending \$27.5 million on exploration and making a cash payment of \$ 1.8 million (Northern Miner, 1997).

Ivernica West Plc and Minorco SA, joint-venture partners in the Lisheen zinc-lead project in County Tipperary, have been granted a state mining lease by the Irish Ministry for Marine and Natural Resources. The issuance of the lease completes the regulatory process required to allow mine construction to start. Construction should take about two years. The operation, having ore reserves of 18.9 million tons grading 12.8% zinc, should last for 14 to 15 years and employ up to 300 people (Mining Journal, 1997).

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TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1996			1997			
	October	Jan.-Oct.	Jan.-Dec.	August	September	October	Jan.-Oct.
Production:							
Mine, zinc content of concentrate	48,200	515,000	628,000	52,200	55,600 r/	50,100	455,000
Mine, recoverable zinc	46,000	492,000	600,000	49,800	53,000	47,900	482,000
Smelter, refined zinc	32,300	303,000	366,000	30,800	30,700	30,700	315,000
Oxide (gross weight)	13,500	129,000	156,000	13,700	14,200	14,500	137,000
Consumption:							
Refined zinc, reported	56,400 r/	554,000 r/	788,000	45,500	50,500 r/	47,200	471,000
Ores e/ (zinc content)	150	1,500 r/	1,800	150	150	150	1,500
Zinc-base scrap e/ (zinc content)	8,300	83,000 r/	100,000	8,300	8,300	8,300	83,000
Copper-base scrap e/ (zinc content)	14,000	140,000 r/	170,000	14,000	14,000	14,000	140,000
Aluminum- and magnesium-base scrap e/ (zinc content)	67	670 r/	800	67	67	67	670
Total e/	78,900 r/	779,000 r/	1,060,000	68,000 r/	73,000 r/	69,700	696,000
Apparent consumption, metal 2/	103,000 r/	986,000 r/	1,210,000	104,000	112,000	110,000	993,000
Stocks of refined (slab) zinc, end of period:							
Producer 3/	10,100 r/	XX	XX	12,300	11,300	11,300	XX
Consumer 4/	59,900 r/	XX	XX	58,000 r/	56,100 r/	54,200	XX
Merchant	2,690	XX	XX	6,250	5,380	4,420	XX
Total	72,700 r/	XX	XX	76,600 r/	72,800 r/	70,000	XX
Shipments of zinc metal from Government stockpile	1,630 r/	11,400 r/	16,500	3,340	1,490	438	29,200
Imports for consumption:							
Refined (slab) zinc	69,900	669,000 r/	827,000	73,300	76,900	NA	684,000 5/
Oxide (gross weight)	4,460	47,600 r/	56,300	4,590	5,120	NA	46,500 5/
Ore and concentrate (zinc content)	264	8,960	15,100	3,100	93	NA	21,300 5/
Exports:							
Refined (slab) zinc	131	1,650	1,970	763	410	NA	2,830 5/
Oxide (gross weight)	431	4,970	5,770	403	1,410	NA	5,010 5/
Ore and concentrate (zinc content)	2,820	261,000	425,000	38,500	122,000	NA	268,000 5/
Waste and scrap (gross weight)	3,170	38,700 r/	45,500	4,490	2,780	NA	38,100 5/
Price:							
London Metal Exchange, average, per metric ton	\$1,003.46	\$1,023.95	\$1,025.03	\$1,653.51	\$1,640.89	\$1,280.14	\$1,359.79
Platt's Metals Week North American Special High Grade, average, ¢ per pound	51.52	50.72	51.11	79.15	78.47	62.09	66.03

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

4/ Includes an estimate for companies that report annually.

5/ Includes data through September only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1996:				
Jan.-Oct.	XX	303,000	301,000	XX
October	9,480	32,300	31,600	10,100
November	10,100	32,000	30,300	11,800
December	11,800	31,200	32,300	10,800
Total	XX	366,000	363,000	XX
1997:				
January	10,800	32,700	32,200	11,300
February	11,300	29,300	29,800	10,800
March	10,800	31,300	30,400	11,600
April	11,600	31,900	31,400	12,100
May	12,100	33,300	33,300	12,100
June	12,100	31,600	33,200	10,500
July	10,500	32,500	31,900	11,100
August	11,100	30,800	29,600	12,300
September	12,300	30,700	31,700	11,300
October	11,300	30,700	30,700	11,300
Jan.-Oct.	XX	315,000	314,000	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED 1/ IN THE UNITED STATES 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1996:				
Jan.-Oct.	XX	129,000	133,000	XX
October	3,260	13,500	13,500	3,200
November	3,200	13,500	13,500	3,180
December	3,180	13,800	13,500	3,480
Total	XX	156,000	160,000	XX
1997:				
January	3,480	13,000	13,300	3,190
February	3,190	12,200	12,000	3,380
March	3,380	13,400	12,700	4,120
April	4,120	13,600	13,600	4,040
May	4,040	14,100	14,200	3,920
June	3,920	14,500	13,800	4,700
July	4,700	13,900	14,100	4,550
August	4,550	13,700	14,300	3,940
September	3,940	14,200	14,600	3,590
October	3,590	14,500	14,600	3,480
Jan.-Oct.	XX	137,000	137,000	XX

XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION 1/ OF ZINC OXIDE SHIPMENTS BY INDUSTRY 2/ 3/

(Metric tons, gross weight)

Industry	1996			1997			
	October	Jan.-Oct.	Jan.-Dec.	August	September	October	Jan.-Oct.
Agriculture	W	W	W	W	W	W	W
Ceramics	508 r/	5,210 r/	6,180	809	668	668	5,650
Chemicals	2,800 r/	26,900 r/	32,700	3,040	3,120	3,070	29,300
Paints	542 r/	5,700 r/	6,790	637	620	604	5,900
Photocopying	W	W	W	W	W	W	W
Rubber	9,170 r/	89,900 r/	108,000	9,250	9,590	9,700	90,900
Other	494 r/	5,200 r/	6,260	556	556	555	5,400
Total	13,500 r/	133,000 r/	160,000	14,300	14,600	14,600	137,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1996			1997			
	October r/	Jan.-Oct. r/	Jan.-Dec.	August	September	October	Jan.-Oct.
Galvanizing:							
Sheet and strip	42,000	397,000	494,000	43,000	45,700 r/	44,800	411,000
Other	13,500	135,000	160,000	14,500	15,000 r/	15,000	132,000
Total	55,600	533,000	654,000	57,400	60,600 r/	59,800	544,000
Brass and bronze	13,200	126,000	155,000	13,700	13,900	14,000	129,000
Zinc-base alloy	18,600	194,000	229,000	16,700	20,500 r/	19,100	175,000
Other uses 2/	15,700	133,000	173,000	16,200	17,000	17,000	145,000
Total	103,000	986,000	1,210,000	104,000	112,000	110,000	993,000

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES

Month	North American Special High Grade, ¢/lb	LME cash	
		¢/lb	\$/mt
1996:			
October	51.52	45.50	1,003.46
November	53.31	47.47	1,046.83
December	52.77	47.00	1,036.26
Year average	51.11	46.50	1,025.03
1997:			
January	55.17	49.28	1,086.52
February	59.26	53.50	1,179.38
March	62.69	56.92	1,254.80
April	61.97	56.26	1,240.40
May	64.94	59.44	1,310.51
June	66.12	61.42	1,354.18
July	73.25	68.85	1,517.96
August	79.15	75.00	1,653.51
September	78.47	74.43	1,640.89
October	62.09	58.06	1,280.14

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1997					
	1996		September		Year to date 2/	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,970	\$2,350	410	\$731	2,830	\$3,810
Ore and concentrate (zinc content)	425,000	190,000	122,000	90,400	394,000	268,000
Waste and scrap (gross weight)	45,500	30,300	2,780	2,400	38,100	26,900
Powders, flakes, and dust (zinc content)	11,100	21,400	652	1,450	6,990	13,500
Oxide (gross weight)	5,770	9,430	1,410	1,190	5,010	7,360
Chloride (gross weight)	1,470	1,230	365	229	2,120	1,500
Sulfate (gross weight)	5,230	2,970	509	327	4,430	2,550
Compounds, other (gross weight)	1,250	4,670	10	36	169	642

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1997					
	1996		September		Year to date 2/	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	827,000	\$882,000	76,900	\$124,000	684,000	\$916,000
Ore and concentrate (zinc content)	15,100	6,380	93	27	21,300	11,400
Waste and scrap (gross weight)	31,900	12,800	2,270	1,310	23,100	10,600
Powders, flakes, and dust (zinc content)	10,300	17,600	1,360	3,220	8,070	16,300
Oxide (gross weight)	56,300	57,500	5,120	6,630	46,500	53,400
Chloride (gross weight)	2,420	2,140	272	227	1,620	1,120
Sulfate (gross weight)	4,050	2,840	889	499	4,810	2,730
Compounds, other (gross weight)	1,190	1,280	93	143	1,190	1,490

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1996:			
October	264,000	1,630	262,000
November	262,000	2,810	259,000
December	259,000	2,110	257,000
Total	XX	16,500	XX
1997:			
January	257,000	3,020	254,000
February	254,000	4,400	250,000
March	250,000	5,080	245,000
April	245,000	5,480	239,000
May	239,000	3,750	236,000
June	236,000	1,750	234,000
July	234,000	860	233,000
August	233,000	3,340	230,000
September	230,000	1,490	228,000
October	228,000	438	228,000
Year to date	XX	29600	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1996	1997 2/		1996	1997 2/	
		September	Year to date		September	Year to date
Ore and concentrate (zinc content):						
Australia	--	--	9,930	--	--	9,930
Mexico	7,000	93	5,390	6,970	93	5,390
Peru	10,000	64	7,070	8,080	--	6,020
Other	322	143	411	91	--	--
Total	17,300	299	22,800	15,100	93	21,300
Blocks, pigs, or slab:						
Brazil	32,000	2,320	21,900	32,000	2,320	21,900
Canada	503,000	35,500	348,000	503,000	35,500	348,000
Finland	18,300	98	13,100	18,300	98	13,100
Mexico	93,900	8,440	58,500	93,900	8,440	58,500
Peru	23,800	2,800	14,200	23,800	2,800	14,200
Russia	24,100	6,420	25,200	24,100	6,420	25,200
Spain	83,200	--	73,300	91,400	--	84,400
Sweden	--	--	12,500	--	42	3,060
Other	40,500	19,800	110,000	40,900	21,200	115,000
Total	819,000	75,400	677,000	827,000	76,900	684,000
Dross, ashes, & fume (content)	15,800	1,630	12,900	15,800	1,630	12,900
Grand total	852,000	77,300	713,000	858,000	78,600	718,000
Oxide (gross weight):						
Canada	28,600	2,830	24,100	28,600	2,830	24,100
China	2,070	92	2,340	2,070	92	2,340
Mexico	21,400	2,040	15,600	21,400	2,040	15,600
Other	4,420	167	4,480	4,310	167	4,450
Total	56,400	5,120	46,500	56,300	5,120	46,500
Other (gross weight):						
Waste and scrap	31,900	2,270	23,100	31,900	2,270	23,100
Sheets	16,900	3,080	19,000	16,900	3,080	19,000
Dust, powder, flakes	10,300	1,360	8,070	10,300	1,360	8,070

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.